Making Better Health Care Decisions for Nova Scotia

A report by the
Clinical Services
Steering Committee

101-04089/

MAKING BETTER HEALTH CARE DECISIONS FOR NOVA SCOTIA

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February 2001

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LETTER FROM COMMITTEE

Hon. Jamie Muir
Minister of Health
Nova Scotia Department of Health
1690 Hollis Street
P.O. Box 488
Halifax, Nova Scotia
B3J 2R8

Dear Minister:

On behalf of the Clinical Services Steering Committee, I submit to you our report on the state of acute care inpatient services in Nova Scotia.

When our committee first took up this job, the objective was clear — to research all aspects of clinical services in the province and develop a tool that could be used to facilitate better decision-making based on evidence.

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This is a new approach to health planning for Nova Scotia. The principle behind the approach is straightforward. It involves assembling evidence so health planners can make better decisions — decisions that help address the unique needs of individual communities.

It is clear that the health system and people's health needs are changing with or without the involvement of government or decision-makers. There is a need to get a handle on what's happening in order to make better decisions.

Primarily, this is a tool for the new District Health Authorities (DHAs). These are the people charged with charting the course for health in their communities.

However, this report also provides information of interest to all Nova Scotians. We believe it is also helpful for government as it moves forward with its vision for sustainable, accessible, quality health care in Nova Scotia.

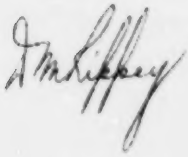
The document that follows is not a final, definitive statement on health care in the province. There has been, and will continue to be, constant change in the delivery of acute services. In order to meet the needs of Nova Scotians in the best way possible, we need to stay on top of these changes. As well, evidence and information should always be balanced with the unique circumstances and characteristics of each district.

Overall, this report constitutes Phase I of the Clinical Services Planning Process — focusing on acute inpatient care in Nova Scotia. Subsequent reports will look at continuing care, primary care and emergency services. The combination of these efforts will result in a better understanding of the overall health system in Nova Scotia and contribute to better, long-term decision-making at the local level.

We would encourage your department to facilitate the next stage of the process — consultation with DHAs and other community stakeholders. Feedback on what works on a practical level in their communities is essential.

We recognize that change in health care is never ending. Efforts and plans must keep pace with people's changing needs. In the end, the goal is a system that meets patient needs first and foremost. Providing a planning tool developed on evidence and solid data is an important first step toward this goal.

Sincerely,



David M. Rippey, MD

Chair, Clinical Services Steering Committee

EXECUTIVE SUMMARY

In its election platform, government committed to "ensuring health care resources are directed by real, measurable evidence."

To this end, government established a committee to review clinical services in Nova Scotia.

Clinical services are the combination of all health services that are provided to serve the health needs of a population.

This typically involves three main service areas:

1) Acute services - hospital-based services
2) Continuing care - including long-term care and home care
3) Primary care and other health services - community care, preventative care, other health services and emergency health services

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The Clinical Services Steering Committee took a phased approach to reviewing health services, focussing first on acute services.

The committee included individuals who work directly in the health care field, with representation from all regions of the province. Committee members included people with front-line experience as administrators, physicians, and nursing staff. Support from the Department of Health was also provided.

The mandate of the committee was to examine Nova Scotia's acute care system and develop a report that outlined evidence, trends and directions. Determining what information was most relevant was an important first step.

This included looking at the characteristics of the population in each DHA, the current use of resources, the distribution of hospital services, and the demand and trends in health services. Information from a variety of sources was analyzed, including the province's Facilities Review, Provincial Health Council report, and Single Entry Access Pilot Project. In addition, national statistics and trends were analyzed. Consultation with former regional boards, non-designated health organizations, the Provincial Health Council and other health groups also took place to ensure that the committee's work was on track.

The committee took a broad look at all information, examining not only the current situation, but trends for the future. One of the objectives was to provide information leading to more effective long-term planning for the future of the health system. Key criteria were sustainability, quality, access and affordability.

In short, the committee developed a tool to help DHAs with their health planning. DHAs will use this evidence to design a system that meets local needs.

Some key findings were that:

- Nova Scotians use inpatient hospital beds more often than other Canadians but less often than other Atlantic Canadians.
- Nearly 30 per cent of hospital patient days were for reasons other than active "acute" care. In other words, these patients could be treated in another manner or facility. A further breakdown showed that:
  - Nineteen per cent of inpatient days in acute care facilities are long-stay days where the patients rarely receive acute services.
  - There are opportunities for reductions in length of stay in another 10 per cent of inpatient days due to the current processes and practices of providing care.
- There were differences in utilization patterns depending on where you live in Nova Scotia.
- Income is the major socio-economic factor found to directly influence acute hospital bed use.
- The average length of stay in Nova Scotia hospitals is 3.6 days, compared with Ontario at 3.4 days and British Columbia at 3.2
- All Nova Scotians currently receive the majority of their acute hospital care in their own districts, but there are opportunities to increase the amount delivered closer to home.
- Hospitals in Nova Scotia have a wide variance in the volume of services (weighted cases) they deliver.
- It requires some critical mass to offer certain services predictably and reliably. This is particularly the case with acute in-patient services provided by physicians in hospitals.
- Volume contributes positively to the development and maintenance of physician skill sets and to the quality of care provided.

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Based on these findings, the committee made a number of observations about how acute services may be organized in Nova Scotia. These observations are intended as guidelines for DHAs. The process of planning for health decisions is ongoing. Observations included:

- Categorizing hospitals into five key groupings according to demand for care and complexity of services.
- Outlining the optimal set of sustainable services to be provided in each hospital category.
- Setting ideal benchmarks for numbers of physicians to maintain in-hospital programs and services.
- Further exploring ways to alleviate the bottleneck of long-stay patients in hospitals by providing more treatment options.
- Evidence, carefully collected and analyzed, should be the key ingredient in decisions affecting acute in-hospital services.
- Outlining key principles for decision-making by all health partners.

Next steps involve DHAs discussing the information with local stakeholders. The discussion will focus on how this evidence can be used in planning and decision-making in the best interest of their communities.

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INTRODUCTION - WHY CHANGE OUR APPROACH?

Good decision-making requires solid information. Not only does this include consultation and input from local stakeholders, it also requires hard data. People cannot make decisions based on general impressions or anecdotal information. They require real evidence. In order to make improvements, they need to know how the system is working and what health services people require.

Why should Nova Scotia change its approach to health planning? There are several reasons. First and foremost is to achieve better health for Nova Scotians.

The old adage that 'the only constant in the world is change' was never more applicable than to the delivery of health care services. There are changes in the health needs of Nova Scotians, changes in the delivery of health care services, changes in the availability and specialization of health care providers, changes in technology and pharmacology - just to name a few.

These changes and many others must be constantly addressed to ensure the sustainability of high-quality services in our health care system. Our health system has changed dramatically over the years and will continue to do so.

For example, years ago it was difficult to find a person who did not have his or her tonsils removed as a youngster. Today, thanks to advances in antibiotics, this procedure is quite rare.

Looking at the trends right across the country, there has been a steady decrease in the number of inpatient acute care services provided in hospitals. Again, advances in treatment and technology have contributed to this trend. Just a few years ago, treatment for gallbladder surgery required a patient to stay in hospital for more than a week. Today, with the development of laparoscopic surgery, people can be out of hospital in less than two days.

The health care system has, and will continue to evolve towards a decreased reliance on inpatient acute services. Shortened lengths of stays, changes in medical practice and the improved ability to discharge patients to other more appropriate settings have decreased the time spent in hospital.

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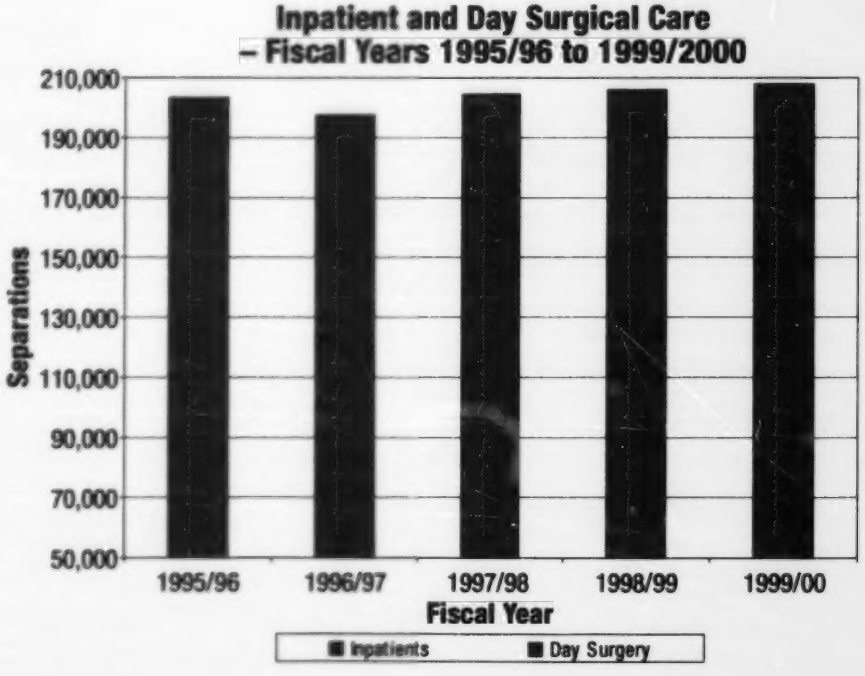
Alternative treatment settings, whether it's in an outpatient department or in the home, have lessened the number of people who need to be admitted to hospital in the first place. The treatment of asthma, a major ailment in Nova Scotia, is now primarily an outpatient service whereas years ago patients were admitted to a hospital for care.

Between the fiscal years 1995 and 1999, the need for inpatient care has decreased steadily, while there has been an overall increase in demand for surgical day care. The result of these changes has lessened the number of required inpatient acute beds. Nevertheless, the demand for services in other settings has increased overall, as indicated by surgical day care. This year, over half of all inpatient and day surgical cases will be day surgeries. Meanwhile, in the last five years, the number of inpatient surgeries has decreased from 128,000 in 1995 to 114,000 in 1999. This trend will continue.

While this report provides information and some guidelines for achieving better results for Nova Scotians, it does not attempt to prescribe solutions. Each district and each community has unique challenges that may require a unique approach to health services.



The inability to respond to changes in health care delivery patterns can result in a lack of services or the inefficient use of existing resources. Examples exist throughout Nova Scotia. For example, while improvements have been made, there are still seniors in hospital beds when they should be in a nursing home setting.

There are communities in the province where health care services are provided by a single practitioner, creating unpredictability if the physician becomes ill or leaves the area. There are examples of specialists leaving the province because they do not see enough cases to maintain their skills.

With limited healthcare resources, both from a care provider and financial perspective, it is imperative that the entire system operates efficiently and cohesively in a reliable and predictable way. This serves the patient best. Too often, it has been easier to keep the past practices of delivering health care while introducing new approaches as if they are merely add-ons to the system. In the last decade, Nova Scotia has added a world class emergency response capability through EHS and a large home care program with 22,000 active cases. The key is to integrate all services to ensure continued sustainability and affordability. For example, an integrated system would consider how the talents and resources of paramedics and nurse practitioners could support and expand on the health services already available in communities.

For years, the quality of our health care system was judged on the number of beds and hospitals. Now, it is clear that numbers alone do not equate to quality. Services must be in the right place with the right resources for Nova Scotians. There must also be other programs and services to complement the picture.

In the past, planning was done on a year to year, budget to budget basis. Now, it is time to take a longer-term view using evidence and facts as a guide. The bottom line is that there is a need for a new approach to health planning.

Asking the right questions is an essential first step. What information do we need to make good decisions? Where are our current resources located? How are they being used? What are the trends for the coming years? Where do gaps exist? Where is there overlap in services? Is there a better way to organize it all?

While this report provides information and some guidelines for achieving better results for Nova Scotians, it does not attempt to prescribe solutions. Each district and each community has unique challenges that may require a unique approach to health services. There are no cookie-cutter solutions. This report is a planning tool for DHAs to take away and discuss with real people in their communities.

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The goal is to bring Nova Scotia's entire health picture into clearer focus. While Phase I focussed on acute services, Phases II and III will look at continuing care and primary care and emergency health services. However, the work doesn't end there. We need to stay on top of the changes in people's health and in people's circumstances in order to meet their needs in the best way possible. There is a need to monitor and evaluate on an ongoing basis.

The clinical services planning process was initiated to anticipate health system changes and to develop a local and provincial approach that ensures that patients, wherever they live in Nova Scotia, will receive reliable, high quality and sustainable health services.

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MANDATE & OBJECTIVES

To develop a new approach to clinical service planning that is focused on evidence and anticipates health system changes, so decision-makers can ensure a health system that meets the needs of Nova Scotians today and into the future.

The committee looked at information and observations that would contribute to a balance of the following objectives:

- Sustainability — enhancing the long term viability of services
- Quality — maintaining critical mass and aligning dependent services together to ensure best patient outcomes
- Access — delivering services as close to home as possible
- Affordability — running the system with greater efficiency and a minimum of duplication

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PRINCIPLES & CONSIDERATIONS

Certain key principles guided the work of the committee:

- Consider the needs of Nova Scotians first and foremost
- Use a population-based and evidence driven methodology
- Focus on a process that leads to outcome and evidence-based decisions
- Seek provider and patient input (consultative)
- Improve use of resources

The following factors were also taken into consideration:

- Aligning health services as part of the move from a Regional to District model
- Developing sustainable programs
- Improving the efficiency of the system
- Better matching health service resources to community and individual requirements
- Improving the affordability of the system
- Establishing an on-going process by which health care service provision could be planned and coordinated

THE COMMITTEE

The clinical services planning process was directed by a steering committee that included representatives from government, service providers, physicians, nurses and others. The committee members included:

- Dr. David Rippey, Northern Region - Committee Chair
- Dr. Brendan Carr, QEII
- John Malcom, Cape Breton Health Care Complex
- Marguerite Rowe, Western Region
- Barb Oke, Department of Health
- Barbara Hall, Department of Health
- Rick Manuel, Department of Health
- Other members, as required

Ex Officio — Dr. Tom Ward, Deputy Minister of Health

In addition to the standing members, other representatives were invited to address specific issues where their unique expertise could benefit the committee's deliberations. In the case of information included from other reports, representatives from the Provincial Health Council, the mental health review committee and the 90-Day facilities review made presentations to the steering committee and discussed the relevant materials with them.

THE APPROACH

Clinical services encompass all facets of health service delivery. However, the committee recognized early on that covering the magnitude of services in this category would lend itself better to a phased approach. The following phases were decided upon:

- Phase I - Acute services
- Phase II - Continuing care
- Phase III - Primary care and emergency services

This report covers Phase I findings and observations. Phases II and III will be initiated in the coming months with a view to combine the processes into a single integrated approach to health systems planning.

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The work plan used by the steering committee included the following steps:

1. Reviewing the population characteristics of each District Health Authority and quantifying their health service utilization, and variations between them.
2. Reviewing the current delivery of hospital services, including the time spent in hospital by admission category, to determine the trends in service delivery, and how the system would reasonably look over the next 2 to 3 years.
3. Reviewing the current distribution of hospital-based services, utilizing the information from steps one and two along with criteria related to building sustainability of programs — and developing a model for the optimum placement of hospital services throughout the province.
4. Reviewing the results of the planning process through consultation with stakeholders and revising the results as appropriate.
5. Developing a monitoring process to ensure that the goals and objectives, as well as the planning assumptions are being met in a fashion that is consistent with the understanding of the committee.

The committee has completed step three and has begun reviewing the results with stakeholders, step four.

SOURCES OF INFORMATION

The committee analyzed information from a variety of sources as part of its review of clinical services. Primarily this included the province's Facilities Review, Mental Health Review, Provincial Health Council report, and Single Entry Access Pilot Project. In addition, national statistics and trends were analyzed. Consultation with former regional boards, non-designated provincial health organizations, (Cape Breton Health Care Complex, IWK Grace Health Centre, Nova Scotia Hospital, and Queen Elizabeth II Health Sciences Centre) the Provincial Health Council and other health groups also took place. Each of the four reports contributed valuable information to how health services should be delivered to meet the needs of Nova Scotians. The reports highlighted:

- The inter-relationships between different parts of the delivery system (i.e. institutional care, home care, community-based care, etc.) and how changing the service aspects of one part can impact the others.
- Where services should be delivered, as opposed to where they may be historically delivered.
- The expectations of Nova Scotians.

The Phase I of the clinical service planning process built on the results of each report and utilized the common themes to develop its findings.

The important lesson learned was that the total capacity of the health care system must meet the needs of Nova Scotians, even if the vehicles by which those needs are met continue to change. For example, we must always have capacity to treat cases of asthma, even though we have moved from inpatient treatment to treatment provided on an outpatient basis using new and better medications. It is the responsibility of government to ensure that the province's health care funds are properly invested to ensure the optimum service mix to meet the current and future needs of Nova Scotians exists.

The Phase I of the clinical service planning process built on the results of each of these reports and integrated them into the overall findings of the work to date. Following is a summary of the findings of each of these reports.

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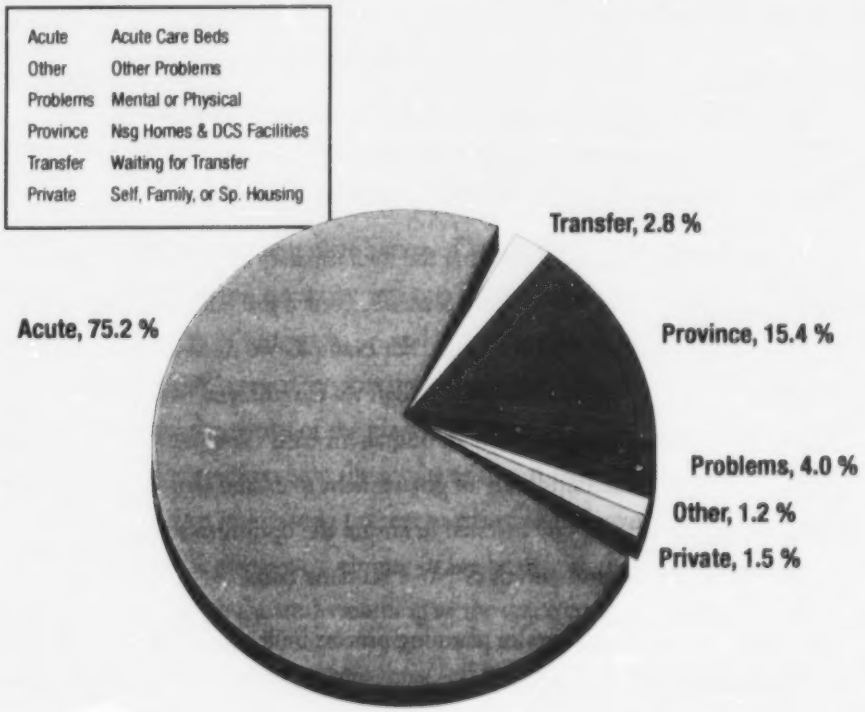
FACILITIES REVIEW

Government committed to "undertake a comprehensive assessment of all health care facilities in order to ensure that Nova Scotians are receiving the right type of care in the appropriate facility." The review found that an average of one in four people in acute care facilities could be eligible for discharge. The single, largest factor that keeps patients in hospital longer than necessary is access to nursing home beds. The review showed that, on average, approximately 25 per cent of hospital patient days across the province, at the time of the survey, were for reasons other than active "acute" care. This was further broken down into 15 per cent awaiting provincial programs (nursing home or home care); four per cent inter-hospital transfer; four per cent with physical or mental illness that could not be managed with current community resources, and the remaining two per cent representing a variety of reasons.

Patient Days Distribution



PROVINCIAL HEALTH COUNCIL

The Nova Scotia Provincial Health Council was asked by the premier to conduct public consultations and develop a list of health services that Nova Scotians felt should be delivered in their communities, at a regional or district level, and at a provincial level. The council held open public meetings in 32 communities, reviewed all the existing Community Health Plans developed by Community Health Boards, and sought the advice of providers across the province. From the information collected, the council prepared a document outlining the health services Nova Scotians considered to be essential at each of the three geographic levels.

SINGLE ENTRY ACCESS PILOT PROJECT

The single entry access demonstration site was implemented to evaluate a placement policy framework and its impact on waiting times for nursing home beds. The pilot is running in the communities of Guysborough, Antigonish, Cape Breton, Victoria, and Inverness Counties in DHAs 7and 8 over a three-month period. The preliminary results indicate that changing the way people are assessed for nursing home beds and using a fair and consistent single access process, can have a dramatic effect on the availability of beds in long term care. Over the pilot period, the wait list for nursing home beds in DHAs 7 and 8 was reduced by approximately 80 per cent.

OTHER INFORMATION SOURCES

In addition to using the results of the above noted reports, the following data sources were also used:

- Canadian Institute for Health Information (CIHI) - Hospitalization data
- Planning documents from all regions of Nova Scotia and provincial health facilities
- Physician Billing Data
- Population Estimates and Projections
- Mental Health Review
- Statistics Canada - Census Data
- British Columbia Hospitalization Data

METHODOLOGY

This section outlines the information that was examined and why it is important for good health planning.

1. DHA POPULATION CHARACTERISTICS AND ACUTE SERVICE UTILIZATION

The shift from regions to districts created new geographic areas under the management of local District Health Authorities (DHAs). While the overall populations being served in the province did not change, their organization did. Therefore, it was important at the outset of the planning process to define the geographic areas, and the underlying populations that were now under the management of each DHA. As well, it was important to describe variations in population characteristics and how health services were utilized between each DHA.

This part of the process was carried out through the following steps:

a) The geographic areas that uniquely comprised each DHA were defined.

b) The population characteristics that typically define variations in health status and hospital utilization were summarized for each DHA from the 1996 Census data. They included:

- Population and Age-Gender Mix
- Education
- Income
- Ethnicity

Additional detail is provided in the Appendix.

c) Using hospitalization data available from the Canadian Institute for Health Information for 1998/99 and 1999/2000, along with population information available from Statistics Canada and the Department of Health, DHA hospital usage was summarized within the following categories:

- Patient Days per 1,000 population
- Separations (discharges) per 1,000 population
- Average days of stay per separation

d) For comparative purposes, each of the above-mentioned categories was summarized at the provincial level.

e) To allow for an external provincial comparison of hospital utilization, the patient days per 1,000 were calculated for each of the Atlantic Provinces, as well as for Ontario and British Columbia.

f) Literature on health care service utilization recognizes that some population characteristics explain variations in how populations use health care and hospital services. While the clinical service planning process will in subsequent phases undertake a broader approach to health systems planning, the Phase I work focused on hospital usage. Therefore, the population characteristics used to explain service variations were limited to hospital separations. In the next section, the findings of this work are summarized for DHAs, with the detail included in the Appendix.

2. EXPECTED SYSTEM CHARACTERISTICS IN 2 TO 3 YEARS - EVALUATION OF TRENDS

The hospital system has demonstrated that the reliance on inpatient beds decreases each year. This change has resulted from improved treatment protocols, treatment in alternative settings, fiscal pressures, and other circumstances. This situation is not unique to Nova Scotia, or even Canada. Decreases in inpatient days are a phenomenon that has been exhibited across North America and other parts of the world.

As a result, the issue facing local health planners is not whether the number of required inpatient beds will decrease over the next several years, but rather, can the reduced number of beds be reasonably anticipated and can peripheral changes in the health care system be put in place to accommodate the situation. The purpose of this aspect of the Phase I planning process was to develop a methodology, and the supporting assumptions, to estimate future hospital bed requirements.

Decreases in inpatient days are a phenomenon that has been exhibited across North America and other parts of the world.

This part of the process was carried out through the following steps:

a) Hospital inpatients were classified as either acute or long-stay patients to recognize that different strategies and factors affected their bed usage.

b) Acute Patient Days were defined as the days that excluded Alternate Level of Care days and the remaining days that fell within the 97.5th percentile length of stay for the Case Mix Group to which they were assigned.

c) Long Stay Days were defined to include Alternate Level of Care Days, plus days in excess of the 97.5th percentile length of stay for the Case Mix Group to which they were assigned. For extremely long-stay patients, the days above twice the acute 'target' length of stay were also added.

d) Retrospective analysis of historical data indicated that a predictor of future average hospital performance was the current performance of the top 25% of hospitals. By applying that measure as a target for hospitals across the province, an estimate for the number of acute patient days within the system 2-3 years hence was determined.

e) The difference between the current inpatient days and estimated target inpatients days was calculated as opportunity days, or the days that could come out of the system over the next two to three years.

f) Long Stay days were summarized for the Phase II planning process. In the second Phase, the type of patients occupying inpatient beds will be differentiated and strategies related to each client type developed.

3. OPTIMAL LOCATION OF SERVICES

The historical distribution of clinical services across the province's hospitals occurred for many reasons. Some of the reasons were practical, such as the location of highly complex cardiac surgery at the provincial health centre. Other service locations may have been influenced by geography, a community's fundraising ability, location of local doctors, historical practices, and a host of other reasons.

The health care system is currently experiencing many changes, including declining requirements for inpatient beds, an aging physician workforce, and difficulty attracting physicians to some locations. As a result of these naturally occurring changes, the purpose of this part of the Phase I planning process was to take a pragmatic look at the distribution of hospital services and to develop a set of criteria that would support their rational distribution throughout the province.

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An ideal approach to developing the program distributions would be to identify a series of specific criteria that would suggest the minimum, optimum and maximum size of a program. Using criteria such as this, the number and distribution of obstetrical programs for the province could be calculated based on the size and distribution of women in childbearing years throughout Nova Scotia.

Unfortunately, such criteria generally only exist for very complex services, and those services have been typically centralized at the provincial health centres.

Criteria to evaluate the less complex cases that are addressed in the majority of the province's hospitals do not exist. Therefore, another approach was developed based upon program sustainability.

This part of the process was carried out through the following steps:

a) Criteria were developed to define sustainable programs based on physician workload and were as follows:

Specialty and Sub-Specialty Services (such as heart surgery and orthopedics)

- Sustainable Elective Program - Hospital workload would sustain two to three physicians within a specialty type.
- Sustainable 24/7 On-Call Program - Hospital workload would sustain four or more physicians within a specialty type.

Inpatient Acute Services

- A Sustainable Program - A caseload would sustain five to seven family practitioners

b) Physician workload was developed using inpatient and day surgical hospital weighted cases as a measure. For each physician type, a threshold value of weighted cases was developed at the 2.5^{th} percentile to identify the minimum workload associated with one full-time equivalent.

c) Using the sustainability criteria, the minimum workload values were summarized to form thresholds, which acted as the minimum program cut-points. (This method does not calculate the total number of physicians required in the province, by type, rather it only identifies the program cut-points for a sustainable program).

d) The total workload of hospitals was evaluated to determine the point at which the physician workload thresholds were met by program type.

e) This workload information, by program, was summarized to create a hospital classification system with five broad categories. Each classification built upon the previous one adding core services as the number of hospital weighted cases increased.

f) The Committee also developed additional criteria that might over-ride a straight hospital classification based on workload alone, and which included:

- Inter-hospital distances (i.e. the distance to available services)
- The overall service delivery package within each District and at each of the local hospital sites
- Physician availability

4. ON-GOING SYSTEM MONITORING

The purpose of developing a monitoring system was to ensure that Nova Scotia continues to have access to consistent, sustainable, high quality health services that are efficient and effective. Further, the Steering Committee wanted to ensure that the future changes to the health care system are monitored, and corrective actions are taken if necessary. It is this monitoring process that provides the basis through which providers and consumers can become increasingly involved in the planning and development of further system changes on an on-going basis.

The indicators developed as part of the monitoring process were designed to:

- Validate the assumptions
- Reconcile 'targets' with actual performance
- Review future population trends
- Ensure the system matches the communities ongoing and changing expectations and requirements

It is this monitoring process that provides the basis through which providers and consumers can become increasingly involved in the planning and development of further system changes on an on-going basis.

This part of the process was carried out through the following steps:

a) Building on similar systems in place across Canada, the Steering Committee reviewed the processes used in other jurisdictions and the work already being done in Nova Scotia, including:

From Nova Scotia:

- The report of the Operational Performance Indicators Working Group (October 1997)
- The Balanced Scorecard Western Regional Health Board
- The report on Comparative Hospital Statistics and Indicators
- The Annual Statistical report (Department of Health)
- 1993 Human Resource Plan

From other jurisdictions:

- Institute for Clinical Evaluative Sciences practice Atlas
- Ontario Hospital Association /University of Toronto Hospital Report
- Alberta Health Business Plan
- Toronto District Health Council System Report Card
- Association of Canadian Teaching Hospitals (Hay Benchmarking)

- Canadian Council for Health Service Accreditation - Achieving Improved Measurement
- Canadian Institute for Health Information - National Consensus project on Population Health
- Edmonton Capital Health Authority
- National Health Services (UK)

b) The Steering Committee began its work by identifying 'key' areas, or domains of focus, or concern, within the health system. The domains were then subdivided into sub-domains. The following five domains were identified as 'key' to the monitoring of the health system in Nova Scotia:

- **Population Health** -Measures that describe the health of the population.
- **Accessibility of Services**-Measures that describe the potential need for and access to the health care system
- **Outcome**-Measures that illustrate the end results of structure and process of health care on the population served
- **Resource Utilization**-Measures of the cost of providing care and the success of management strategies to maximize productive use of resources
- **Satisfaction with the System**-Measures that describe how stakeholders and users perceive the system

c) The Steering Committee next determined the need for a series of measures for each domain and sub-domain that would provide a quantifiable evaluation of each one. The measures, which are highlighted in the findings section of this report, were selected based on the following criteria.

Relevance

How well does the proposed measure relate to the domain? If variation in the measure is identified, can corrective action be taken by the health care system?

Scientific Soundness

Is the measure scientifically and statistically valid, and reliable? Can the measure be used for comparisons with other agencies and/or jurisdictions? Does variation in the measure come from the domain under scrutiny?

Feasibility

Can the information be obtained at a reasonable cost, and frequently enough to be meaningful?

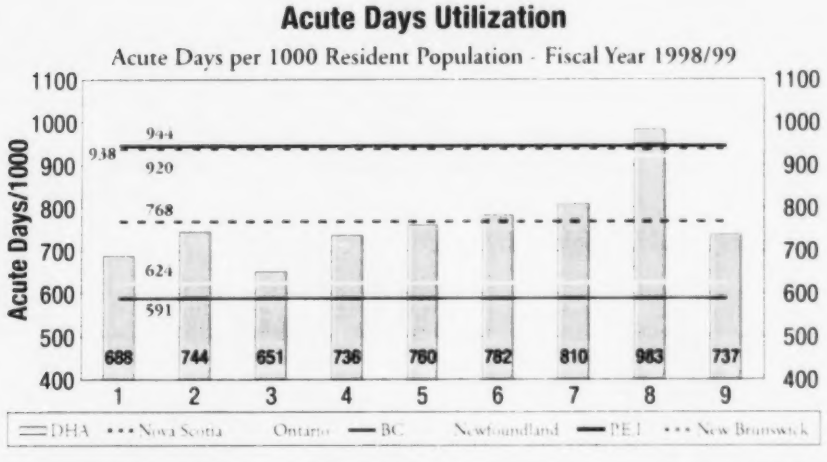
d) The current values for each of the measures were established as a base line for monitoring the future position of the hospital system.

On a recurring basis, the frequency to be established by the Steering Committee, the measures will be updated, and compared to the base line, to monitor changes in the system and to be able to relate them to the implementation of the findings from the planning process.

FINDINGS

The findings from the steering committee can be generally divided into three components:

- Utilization comparisons
- Expected service requirements
- Service distribution considerations



This chart illustrates the variations in hospital utilization among District Health Authorities (DHAs) and among Nova Scotia and other provinces. The findings have been standardized for variations in the populations (i.e. age, gender and type of case) and are specific to acute hospitalizations only (i.e. long-stay days have been removed).

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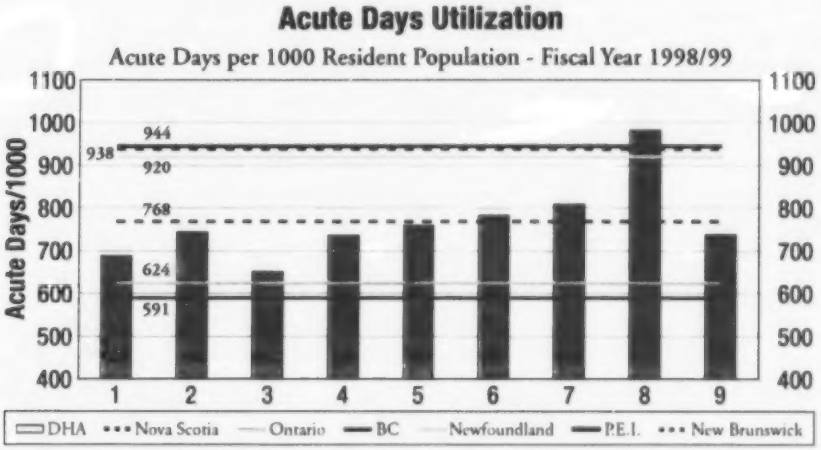

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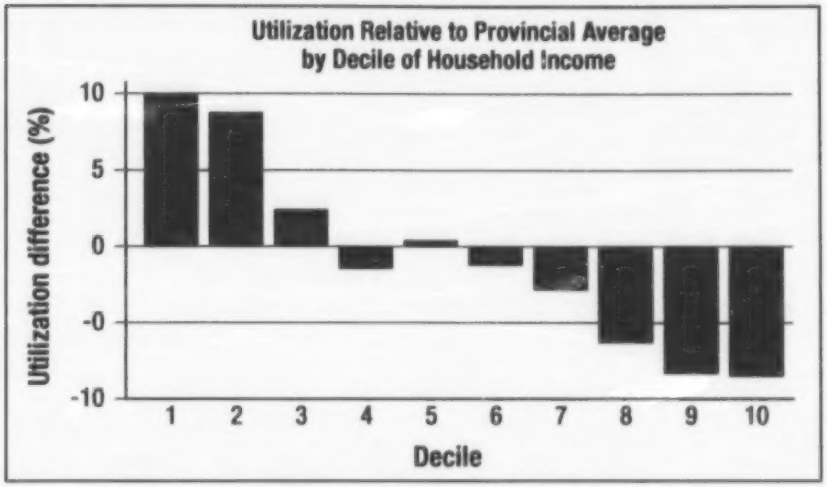
Pattern for Relative Incomes and Hospital Utilization



Healthcare literature recognizes that some socio-demographic factors can influence health, health care and hospital use. A number of factors (education, income, and ethnicity) were reviewed in relation to their relevance in explaining variations in hospital usage by Nova Scotians. The major factor that was found to correlate with the variations was income. The above chart illustrates that when you divide Nova Scotians into ten income groups, each grouping indicates a variation from the average utilization. For example, the lowest 20 per cent of income earners have a 10 per cent higher utilization rate than the provincial

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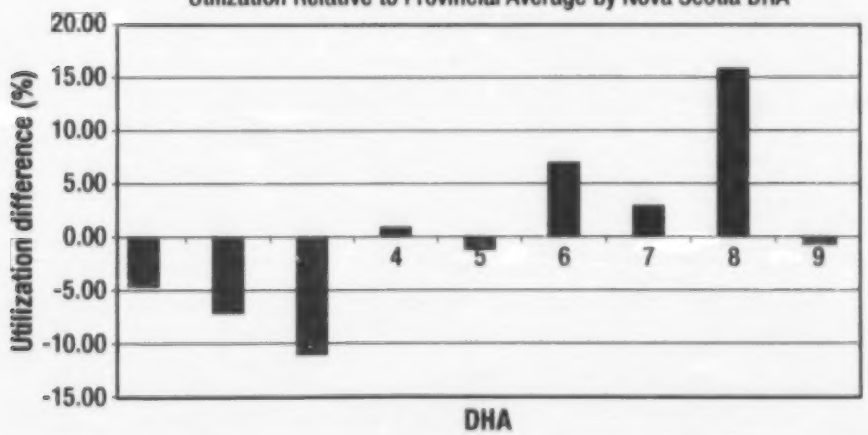
Variation in Nova Scotia Utilization Adjusted for Effect of Income

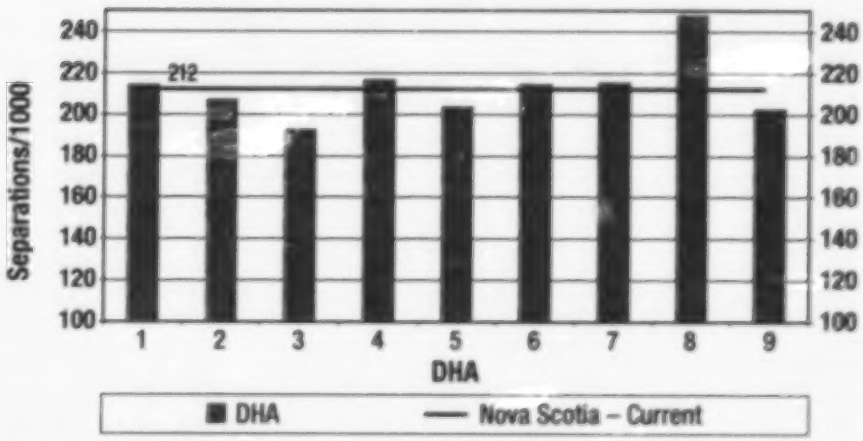


mean. At the opposite end, the top 10 per cent of income earners have a 10 per cent lower utilization rate.

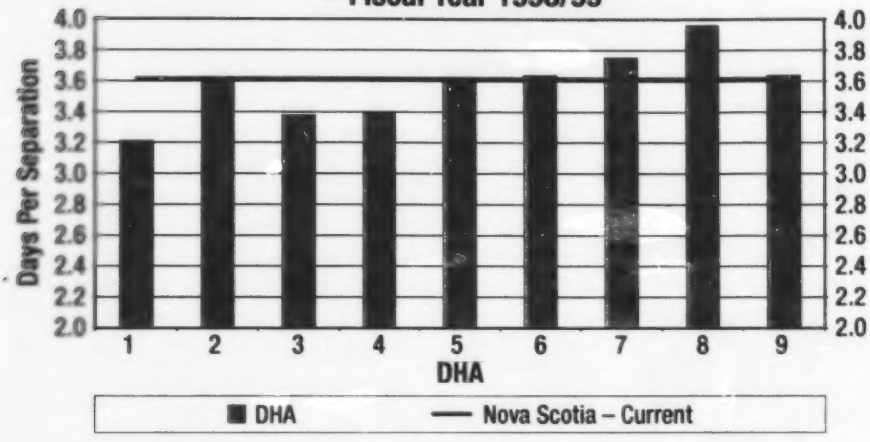
When this adjustment is applied to each DHA, in an attempt to explain their variations, the differences in DHAs 4, 5 and 9 (Colchester - East Hants, Cumberland and Capital) are generally accounted for. However, 16 per cent of the higher utilization in DHA 8 (Cape Breton) is unaccounted for, as is the 12 per cent lower utilization in DHA 3 (Valley). When all factors are accounted for, residents in western Nova Scotia (DHAs, 1,2,3) are below the provincial mean while residents in eastern Nova Scotia (DHAs 6,7,8) are above the provincial mean for acute bed utilization.

On average, there are 212 separations per 1,000 resident population in Nova Scotia.

Separations Per 1000 Resident Population – Fiscal Year 1998/99



Separations are another term for discharges from hospital. On average, there are 212 separations per 1,000 resident population in Nova Scotia. Most DHAs have separation rates that are consistent with the provincial average. DHA 8 (Cape Breton) has the highest separation rate at 248 discharges per 1000 resident population while DHA 3 (Valley) has the lowest at 193.



The average stay in an acute bed in Nova Scotia is 3.6 days, compared with Ontario at 3.4 days and British Columbia at 3.2 days. It is interesting to note that in the case of DHA 1 (Yarmouth, Digby, Shelburne), it had a higher than average separation rate per 1,000 resident population, but one of the lowest acute days per 1,000 population. Overall, this resulted in the lowest average stay per separation at 3.2 days.

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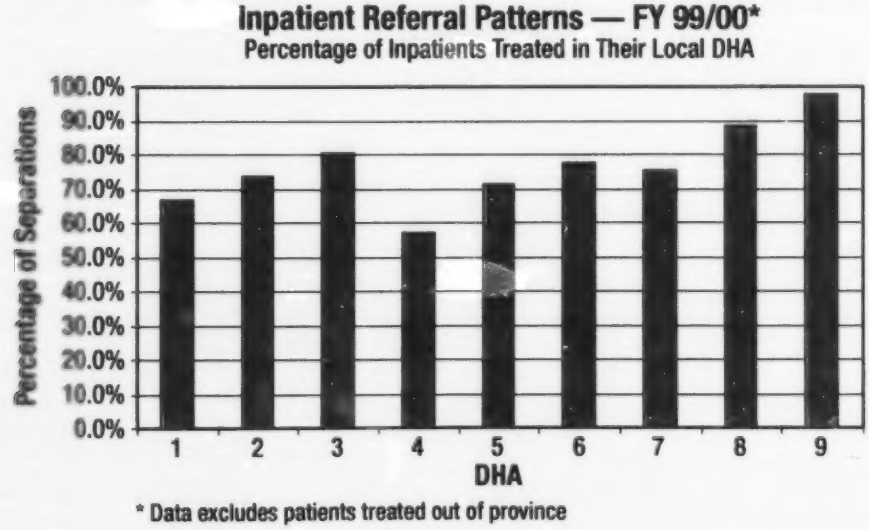
Regarding acute services, the majority of care that Nova Scotians receive is in their home district. Although this is the case, the evidence suggests that by fortifying some existing services more care could be delivered more appropriately



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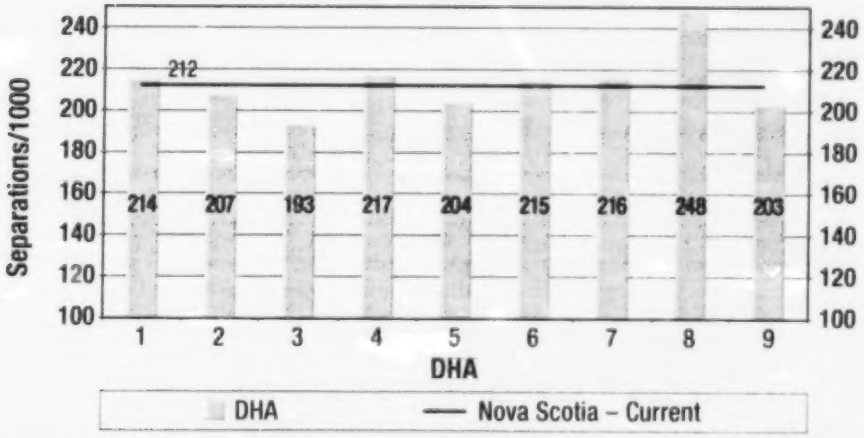

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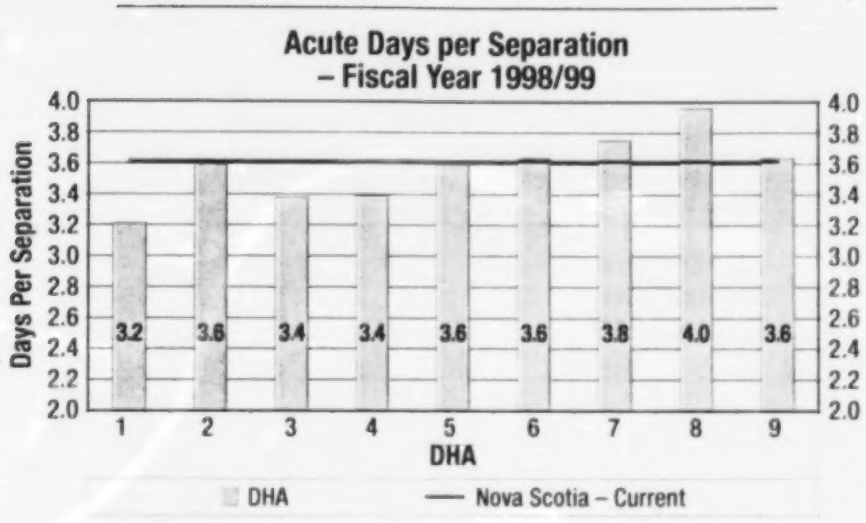

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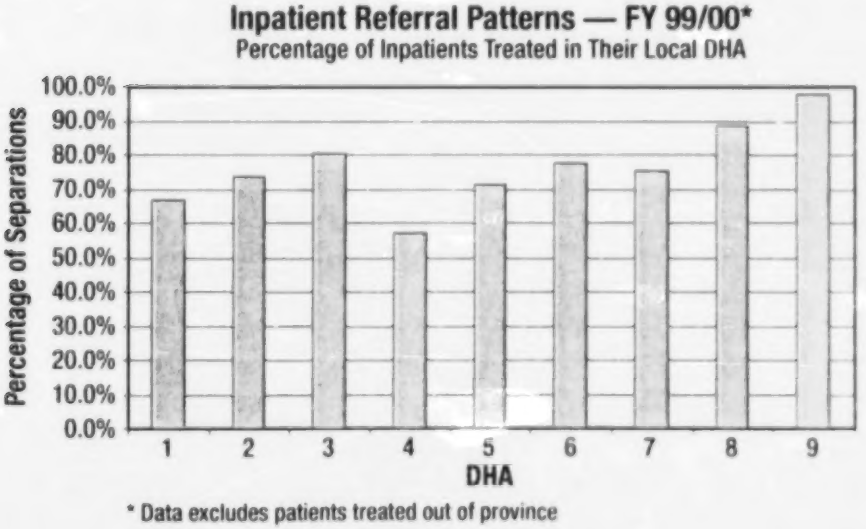

* Data excludes patients treated out of province

closer to home. As expected, DHA 9 (Capital) residents receive 98 per cent of their treatments in their district. At the other end of the spectrum, in DHA 4 (Colchester) approximately 57 per cent of residents receive treatment at home while 41 per cent of the residents travel for treatment to DHA 9 (Capital).

Inter-provincial referral patterns provide interesting information as well. In fact, 98.8 per cent of Nova Scotians receive their care in Nova Scotia. Prince Edward Island on the other hand refers about 8 per cent of patients elsewhere, especially for neurosurgery and opthamology.

Inter-Provincial Referral Patterns By Program FY98 Program	New Brunswick	Newfoundland	Nova Scotia	P.E.I.
Cardio/Thoracic	96.4	98.7	98.8	39.4%
Cardiology	98.8%	99.1%	99.5%	88.4%
Dental/Oral Surgery	85.7%	100.0%	100.0%	87.5%
Dermatology	99.3%	100.0%	98.3%	94.4%
Endocrinology	98.5%	99.7%	98.7%	97.9%
Gastro/Hepatobiliary	99.0%	99.4%	99.0%	97.0%
General Medicine	98.6%	99.3%	99.1%	96.3%
General Surgery	97.9%	99.2%	99.2%	91.8%
Gynaecology	98.9%	99.8%	97.9%	97.6%
Hematology	98.9%	99.7%	98.8%	93.2%
Neonatology	97.4%	99.1%	98.1%	92.6%
Nephrology	96.8%	98.9%	97.3%	75.0%
Neurology	98.9%	99.7%	98.7%	94.7%
Neurosurgery	94.6%	97.6%	97.6%	49.5%
Normal Newborns	99.7%	99.9%	99.7%	99.6%
Not Generally Hospitalized	97.2%	98.4%	97.8%	54.3%
Obstetrics	99.3%	99.6%	99.1%	97.6%
Oncology	97.4%	99.3%	96.5%	83.8%
Ophthamology	64.8%	93.9%	99.5%	51.0%
Orthopaedics	97.8%	98.9%	97.9%	84.5%
Otolaryngology	96.3%	99.5%	98.7%	93.2%
Plastic Surgery	99.2%	100.0%	98.8%	72.7%
Psychiatry	99.3%	99.7%	99.4%	98.5%
Pulmonary	99.6%	99.6%	99.2%	97.8%
Rehabilitation	100.0%	99.0%	96.2%	100.0%
Rheumatology	95.9%	96.8%	98.8%	91.7%
Trauma	98.1%	99.3%	96.3%	85.2%
Ungroupable	81.8%	100.0%	100.0%	80.0%
Urology	98.0%	98.4%	98.9%	95.0%
Vascular Surgery	99.7%	100.0%	97.6%	93.9%
Total	98.2%	99.3%	98.8%	92.3%

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Ungroupable	81.8%	100.0%	100.0%	80.0%
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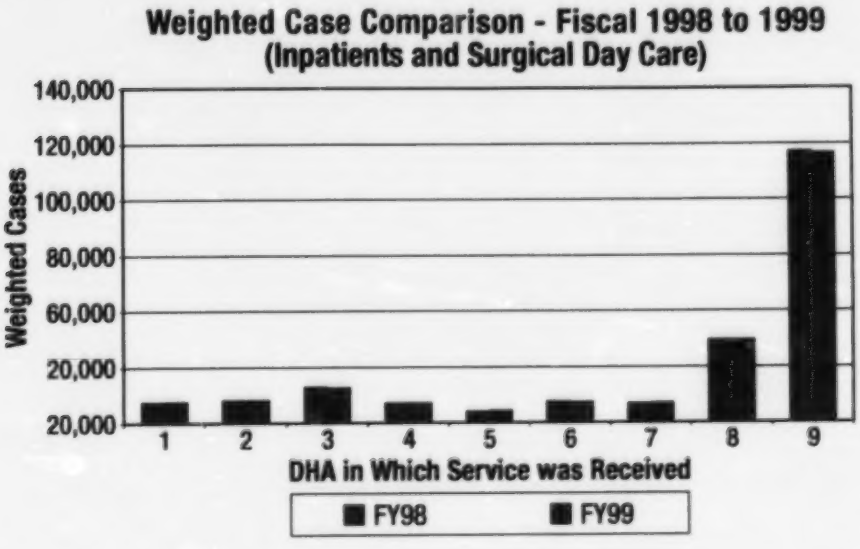
Hospital workload is generally measured in weighted cases. Weighted cases provide a standardized means to compare a hospital's services in terms of its



resource requirements. It measures both the volume of inpatient cases occurring in a facility as well as the intensity of those cases. Simple procedures have small resource intensity weights associated with them, while cases with complex requirements will have heavier weighting.

For example, two hospitals both have 1,000 separations. One hospital specializes in major joint replacements (i.e. hip and knee replacements) with an average weighted case value of 4.5. The second hospital specializes in obstetrics with an average weighted case value of less than 1.0. The first hospital would be assigned 4,500 weighted cases. The second hospital would be assigned less than 1,000 weighted cases.

Weighted case values for a hospital form the basis of calculating the physician full time equivalents (FTE's) and the sustainability of a hospital's program.

This chart shows the range of weighted cases across DHAs for both surgical day care and inpatient days. As expected, DHA 8 (Cape Breton) and DHA 9 (Capital) have the highest number of weighted cases. In fact, together they handle more than two-thirds of Nova Scotia's weighted case effort.

Weighted cases provide a standardized means to compare a hospital's services in terms of its resource requirements. It measures both the volume of inpatient cases occurring in a facility as well as the intensity of those cases.

Weighted Case Comparison

Hospital	Wt. Cases
Sutherland Harris **	N/A
Bayview Memorial Health Centre	41
South Cumberland Community Care Centre	79
Twin Oaks Memorial Hospital	173
All Saint's Springhill Hospital	180
Eastern Memorial Hospital	212
Musquodoboit Valley Memorial Hospital	220
St . Mary's Memorial Hospital	230
North Cumberland Memorial Hospital	265
Guysborough Memorial Hospital	297
Eastern Shore Memorial Hospital	306
Annapolis Community Health Centre	368
Sacred Heart Hospital	383
Buchanan Memorial Hospital	417
Victoria County Memorial Hospital	553
Lillian Fraser Memorial Hospital	640
Strait - Richmond Hospital	697
Digby General Hospital	915
HSASS - Fishermen's Site	924
Roseway Hospital	981
Queens General Hospital	1,541
Cape Breton Health Care Complex - New Waterford	1,549
Inverness Consolidated Hospital	1,773
Hants Community Hospital	2,390
Soldiers' Memorial Hospital	2,585
Cape Breton Health Care Complex - North Side	3,713
Highland View Regional Hospital	3,762
Cape Breton Health Care Complex - Glace Bay	4,223
HSASS - South Shore Site	5,131
St. Martha's Regional Hospital	5,554
Colchester Regional Hospital	6,370
Yarmouth Regional Hospital	6,537
Aberdeen Hospital	7,396
Dartmouth General Hospital	8,536
Valley Regional Hospital	9,799
Cape Breton Health Care Complex - Regional	17,064
Nova Scotia Hospital	7,051
IWK Grace Health Centre	17,062
Queen Elizabeth II Health Science Centre	60,720
Total	**180, 637**

*** Sorted by FY 1999/00 weighted cases**

**** Sutherland Harris is not an acute inpatient care facility**

The chart on the previous page shows the weighted caseload at each of the province's hospitals for the fiscal year ending March 31, 2000. As could be expected, there is a significant difference between our smaller community hospitals and our larger regional and provincial facilities. In fact, 20 of our 39 hospitals have fewer than 1,000 weighted cases each, while the QEII Health Sciences Centre has over 60,000 weighted cases.

The charts on the following page show that of all inpatient days treated in hospital, only 71 per cent are used for active acute patients. In fact, 19 per cent were associated with long-stay patients, who could be more appropriately and better cared for elsewhere. The remaining 10 per cent of inpatient days were classified as inefficient days or opportunity days. These are days when better scheduling for testing and support services could lead to greater efficiencies for hospital and patient alike. For example, rather than bringing a patient in a day or two before elective surgery, they could be admitted the day of surgery with pre-operative testing being done on an outpatient basis. Altogether, there were more than 869,000 patient days used in Nova Scotia's hospitals in 1999. This represents an average of almost one day in hospital per resident of the province.

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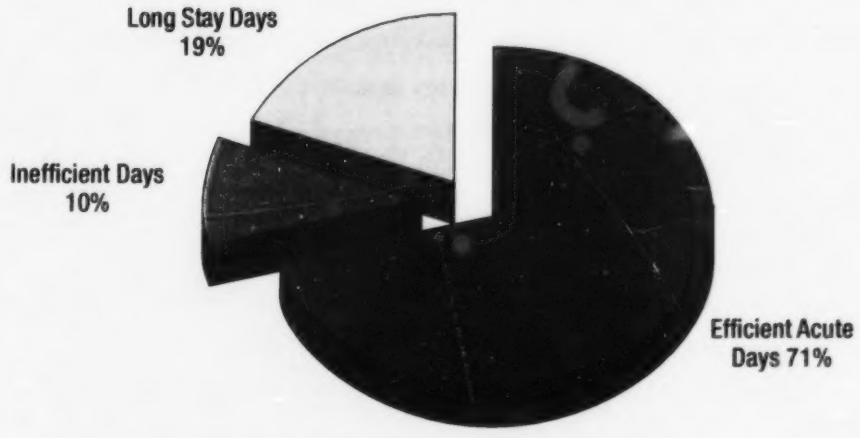
Distribution of Inpatient Days

Nova Scotia 1998/99



Days of Care in Nova Scotia

	Days	% of Total Days	Days per 1000 population
Efficient Acute Days	615,968	71%	655
Inefficient Days	89,797	10%	96
Long Stay Days	163,696	19%	174
Total Days	869,462	100%	925

OBSERVATIONS

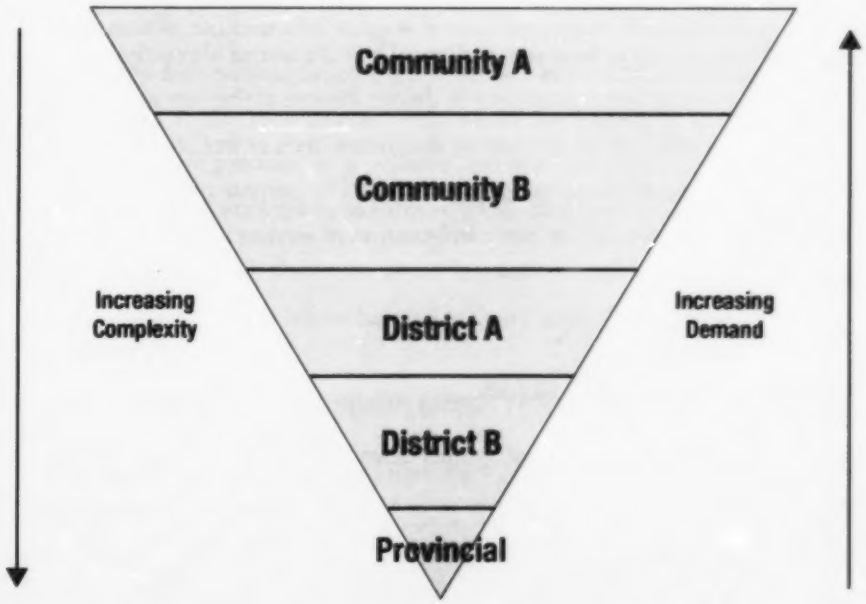
After looking at the findings, the committee turned its attention to outlining the ideal benchmarks or criteria for organizing hospital acute services. These observations are based on evidence in the findings. This information needs to be discussed within each district and balanced against the realities they face on a daily basis.

The observations are divided into four areas;

1) Classification of Hospitals
2) Services by Hospital Class
3) Physicians/Specialists complement for Sustainable services
4) Key Principles for Decision-Making

1. CLASSIFICATION OF HOSPITALS

In its work, the steering committee concluded that the most reliable, sustainable hospital network was one that included a classification for hospitals based on distinct, high-quality service offerings. Nova Scotia has 39 hospitals. They range from small hospitals that offer family practice physicians, basic radiography and laboratory services, E.R. and several short or long stay beds to our provincial facilities that offer highly specialized surgical and medical services. The



committee developed a range of core hospital services to address the issue of long-term sustainability and predictability for patients. This was divided into five distinct hospital classifications.

Much like the report of the Provincial Health Council, the committee found that a system of classifying hospitals was desirable. The committee concluded that hospitals in Nova Scotia should be classified as Community A or B, District A or B, or Provincial. Community A hospitals would provide the least complex care while our Provincial hospitals would provide the most specialized and complex care. The committee recognized that a network of district hospitals and community hospitals would provide the best range of surgical and medical services in and across districts.

The range of services is an attempt to recognize the roles that these hospitals are playing and provide them with the focus and support that they require to better match their programming to patient needs.

The range of services is an attempt to recognize the roles that these hospitals are playing and provide them with the focus and support that they require to better match their programming to patient needs. For example, while some smaller hospitals may deliver 'acute' programming for their patients, a significant number of their patients may actually be long stay patients who have different requirements. In planning the future roles of hospitals, it is important to note that while sustainability is very important, other factors identified by DHAs may also impact classifications.

One outstanding consideration in the hospital designations is the direction of service delivery related to long-stay patients. There are several alternatives to address this, ranging from continuing to deliver services as they are now to expanding long term care to developing designated units or free standing hospitals with a specific focus on long-term care. The purpose of the Phase II process is to better identify the best configuration of services to address their needs.

2. SERVICES BY HOSPITAL CLASS

The evidence indicated there were optimal clusters of services that worked best together. To ensure that Nova Scotians continue to receive excellent care, the committee feels that the two most important factors in siting services should be the availability of sufficient cases to sustain a viable, high-quality program and

the necessity to combine services that require one another such as cancer surgery program and pathology.

Community A	Community B	District A	District B	Provincial
Family Practice	**Previous Plus**	**Previous Plus**	**Previous Plus**	**Previous Plus**
Basic Radiography	**On Call GP rotation**	**General Surgery**	**Cardiology**	**Neurosurgery**
Basic Laboratory	**Level 3 Emergency**	**Anesthesia**	**Respiratory**	**Infectious Disease**
Level 4 ER with Level 3 Paramedics	**Pre Natal Care**	**OBS/GYN**	**Gastroenterology**	**Specialized Paeds**
	Post Natal Care	**Internal Medicine**	**High Risk Obstetrics**	**Burn ICU**
Ancillary, clinical and infrastructure support from District Hospital	*General Surgery*	**Level 2 Emergency**	**Otolaryngology**	**Cardiac Surgery**
	Anesthesia	**General Diagnostics**	**Orthopaedics**	**Transplants**
	Low Risk Obstetrics	**Ancilliary**	**Ophthalmology**	**Endocrinology**
		Critical Care	**Pathology**	**Cardio Thoracic**
		Paediatrics	**Level 2 Emergency**	**Urology**
Long Stay Beds		*Cardiology*	**ICU/CCU**	**Plastics**
		Respiratory	**Psychiatry**	**Oncology**
Short Stay/ Convalescent Beds		*Gastroenterology*	**Paediatrics**	**Neurology**
		Psychiatry	*Urology*	**Dermatology**
		ENT/Opthalmology	*Plastics*	**Endocrinology**
			Thoracic	**Immunology**
			Max Fax	**Hematology**
			Oncology	**Level 1 Emergency**
			Neurology	**Trauma**
			Dermatology	
			Endocrinology	

Bold = Core Service
Italics = For Discussion with DHAs and Stakeholders

Accordingly, the committee outlined the types of services that should be within each hospital according to designation.

The committee also recognized that there are currently a variety of services being offered at specific hospitals that are supported by practitioners that may not fall into the ideal service offering for the facility's designation. Several of Nova Scotia's smaller facilities offer surgical services because of the existence of a sole surgeon. By their nature, these programs are not sustainable or reliable. In these cases, the committee recommended that the service offering be grand-fathered while the current practitioner is available. In those rare cases, the current service should align itself with the sustainable surgical offering of a district hospital.

While there was much discussion about hospital beds, the committee felt that the most relevant factor is how hospital beds are being used.

The goal is to have a system that meets the needs of Nova Scotians today and into the future.

3. PHYSICIAN/SPECIALIST COMPLEMENT FOR SUSTAINABLE SERVICES

Patients in Nova Scotia deserve to have high quality, sustainable services available when they require them. In acute settings, it is very important that physicians and specialists have the opportunity to work with their peers. Practitioners,

especially those providing specialty services, work best as part of a team. In a team environment, there is more opportunity for collaboration between specialists and a team implicitly provides for additional sustainability for any program.

There are two ingredients necessary for sustainable programs; sufficient practitioners and sufficient patients. The analysis of the minimum acute inpatient workload required to sustain five to seven family practitioners, (i.e. the threshold for a sustainable, predictable in-hospital acute service) was calculated to be over 1,000 weighted cases. As hospitals increase in workload, the number of full time equivalent family practitioners should increase.

As hospitals continued to increase in size, additional specialties and sub-specialties became sustainable. The following illustrates examples of differences in physician complements as hospitals increase in their number of weighted cases.

Patients in Nova Scotia deserve to have high quality, sustainable services available when they require them.

Wt. Cases	Family Practice	Surgeon	Internist	OB/ GYN	Psychiatrist	Total
1000	7					7
3000	18	4				22
6000	29	6	4	3	2	43

As the number of weighted cases increases so does the capacity of a facility to host a sustainable program. There have been many recent experiences in Nova Scotia where the lack of cases has resulted in a program being unsustainable. Recently, the sole infant cardiac surgeon in Halifax indicated he was leaving because of a lack of cases in his chosen specialty. Regrettably, that and other incidents will occur more frequently unless sustainable programs are established according to sound evidence and criteria.

4. KEY PRINCIPLES FOR DECISION-MAKING

The committee observed that a key ingredient for change in any system is adherence to a set of evidence-based guiding principles for decision-makers. This becomes even more necessary in a large and complex system like health care where much of the decision-making is de-centralized. The committee recognized that all Nova Scotians are very concerned about the reliability and sustainability of their healthcare system. They see and hear things everyday about the system, its failings and successes. The future will be an environment of increasing demand due to demographic changes and constrained resources both in terms of the availability of health care providers and financial resources, therefore it is critical that decisions are made on the basis of sound evidence. Accordingly, the committee developed several key principles that should be factored into all decision-making at every level when deciding on the provision of acute in-hospital services. They are:

a) Quality

Does the decision positively contribute to the quality of service a patient is receiving? Has the issue of critical mass been part of the decision-making? Do in-patient services and resources complement each other? Will the patient receive high quality acute services because their care team is a cohesive, well-trained and equipped group with experience on cases just like the patient's?

Does the decision positively contribute to the quality of service a patient is receiving?

b) Sustainability

Is the service sustainable? Can it withstand a provider or two leaving or becoming sick? Will it be there when it is needed, even in the middle of the night? Are there enough cases in a service area to maintain the skills of providers? Is it possible to recruit and retain enough providers to provide the service?

Are there enough cases in a service area to maintain the skills of providers?

c) Access

Where does it make most sense to locate the service? Is it close enough to the residents it is intended to serve? Will patients be able to receive an acute service when they need it? Will distance from service affect medical outcome? Are the waiting lists affecting patient outcomes? Does the organization of the system frustrate users?

Where does it make most sense to locate the service?

Will the investment result in better patient service and outcomes?

d) **Affordability**

What is the best use of our resources? Have choices been made to receive the most benefit from each dollar spent? Are we duplicating effort needlessly? Will the investment result in better patient service and outcomes?

NEXT STEPS

The best way to achieve better decisions is through discussion. Health planning is an ongoing process. DHAs will now consult on how this evidence can be used in planning and decision-making in the best interest of their communities. They will also identify local issues that may make reaching suggested benchmarks unreasonable.

DHAs will embark on discussions with local stakeholders in their districts. This includes Community Health Boards, health providers, facility administrators and others. This process will assist in long range planning and decision-making.

In the coming months, Phases II and III will be initiated looking at continuing care and primary care and emergency services. The combination of these efforts will result in a better understanding of the overall health system in Nova Scotia and contribute to better, long-term decision-making at the local and provincial level.

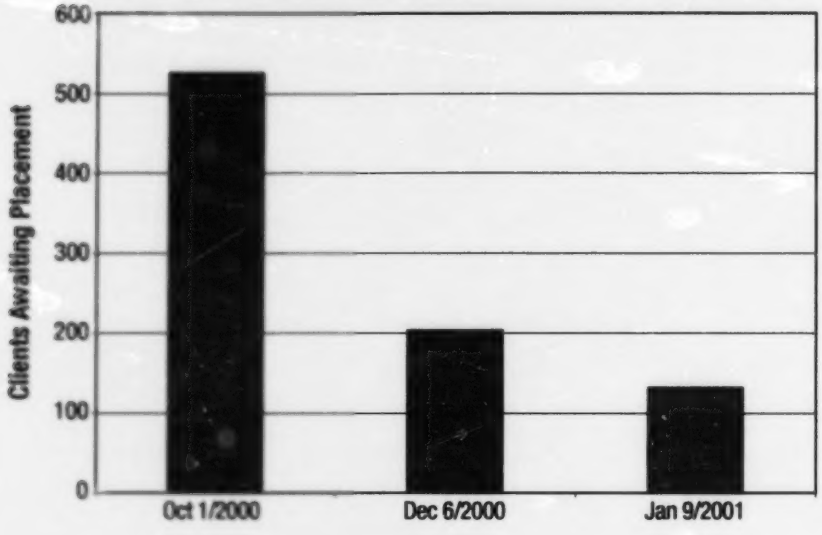
The goal is to have a system that meets the needs of Nova Scotians today and into the future. It must be a system where people are at the centre of every decision. It must be a system where decisions are made by communities, based on what people need, based on the facts. It must be a system that is fully integrated and of the highest quality possible. The bottom line is a province where Nova Scotians are healthy, active members of their families, communities and province. This report is an important step toward this vision — providing solid evidence so we can make better health decisions for Nova Scotians.

DHAs will now consult on how this evidence can be used in planning and decision-making in the best interest of their communities. They will also identify local issues that may make reaching suggested benchmarks unreasonable.

APPENDIX

Single Entry Access Pilot Project

Nursing Home Patients Awaiting Placement (DHA 7 and 8 Residents)



Provincial Home Care Case Loads, Admissions and Discharges, 2000/2001

	Provincial	DHA 1	DHA 2	DHA 3	DHA 4	DHA 5	DHA 6	DHA 7	DHA 8	DHA 9
Intakes	12,809	1,040	1,098	1,364	564	224	268	603	1,783	5,974
Urgent Low		18	20	38				12	4	
Urgent Medium		70	40	216				32	56	
Urgent High	6,768	372	528	488	422	108	170	386	1,022	3,168
Non Urgent Low	3,067	158	248	242	88	56	70	99	295	1,709
Non Urgent Medium	2,424	228	128	220	54	60	28	72	116	1,097
Non Urgent High	194	134	160					164	912	
Initial Assessments	13,145	864	942	1,186	650	340	330	477	1,543	6,778
Reassessments	22,606	1,014	1,282	1,164	1,978	920	1,020	948	3,283	10,570
Active Caseload Beginning of Month										
Total Admissions	10,001	794	904	1,094	576	322	338	449	1,311	4,166
Acute Admissions	2,050	66	258	154	38	10	34	24	105	1,330
Chronic Admissions	7,951	728	646	940	538	312	304	425	1,207	2,837
% Acute Admissions	20.5%	8.3%	28.5%	14.1%	6.6%	3.1%	10.1%	5.3%	94.8%	31.9%
% Chronic Admissions	79.5%	91.7%	71.5%	85.9%	93.4%	96.9%	89.9%	94.7%	92.1%	68.1%
Discharges	10,478	772	934	1,024	638	332	402	585	1,469	4,159
Active Caseload End of Month										
Caseload YTD	21,888	1,734	2,096	2,121	1,535	1,032	932	1,385	3,531	7,475

Nursing Home Beds Funded By the Department of Health

DHA	RESPITE	TOTAL BEDS	75 + POPULATIONS POP 98	BEDS/1000
1	9	450	4,716	95.4
2	9	489	5,085	96.2
3	2	485	5,443	89.1
4	0	218	4,014	54.3
5	7	227	2,908	78.1
6	7	459	3,748	122.5
7	8	359	3,314	108.3
8	10	1,053	9,215	114.3
9	16	2,092	17,258	121.2
PROVINCE	**68**	**5,832**	**55,701**	**104.7**

Population Change 1998 to 1999

DHA	Pop 98	Pop 99	Change
1	60,883	61,233	0.6%
2	65,526	65,458	(0.1%)
3	84,177	84,718	0.6%
4	72,389	73,113	1.0%
5	34,309	34,091	(0.6%)
6	49,547	49,247	(0.6%)
7	49,392	49,216	(0.4%)
8	139,778	138,085	(1.2%)
9	378,586	384,630	1.6%
Total	934,587	939,791	0.6%

Statistics Canada – Census 1996 by DHA

DHA	1	2	3	4	5
1991 Population	60,510	66,484	79,947	67,016	34,284
1996 Population	59,904	64,812	81,507	69,975	33,804
% Change 1991 to 1996	-1.0%	-2.5%	2.0%	4.4%	-1.4%
Growth rate 1991 ot 1996	0.99	0.97	1.02	1.04	0.99
1998 Population (estimate)	60,883	65,526	84,177	72,389	34,309
% Change 1996 to 1998 (estimate)	1.6%	1.1%	3.3%	3.4%	1.5%
Growth rate 1996 ot 1998 (estimate)	1.02	1.01	1.03	1.03	1.01
1996 Population 65+	9,910	10,435	11,335	8,730	6,055
1996 Population %65+	16.5%	16.1%	13.9%	12.5%	17.9%
1996 Population 75+	4,640	5,030	5,270	3,880	2,865
1996 Population %75+	7.7%	7.8%	6.5%	5.5%	8.5%
1996 Population 15+	49,265	52,480	64,860	55,260	27,590
1996 Population %15+	82.2%	81.0%	79.6%	79.0%	81.6%
1996 Population <15	10,639	12,332	16,647	14,715	6,214
1996 Population %<15	17.8%	19.0%	20.4%	21.0%	18.4%
1996 Population	59,295	64,085	80,540	69,485	33,010
1996 Aboriginal Population	550	500	690	2,155	115
1996 % Aboriginal Population	0.9%	0.8%	0.9%	3.1%	0.3%
1996 Population 65+	9,430	9,750	10,625	8,220	5,645
1996 Population 65+ living Alone	2,585	2,810	3,110	2,340	1,855
1996 % Population 65+ living Alone	27.4%	28.8%	29.3%	28.5%	32.9%
1996 Population - Mother Tongue	59,305	64,080	80,545	69,490	33,005
1996 Population - Mother Tongue(single response)	59,130	63,540	80,305	69,255	32,930
1996 Population - Mother Tongue(single response) - Non-Official Lang	680	395	1,540	1,305	425
1996 Population - % Mother Tongue(single response) - Non-Official Lang	1.2%	0.6%	1.9%	1.9%	1.3%
1996 Population - Home Lanuage	59,300	64,095	80,550	69,490	33,010
1996 Population - Home Lanuage(single response)	59,195	63,645	80,330	69,380	32,950
1996 Population - Home Lanuage(single response) - Non-Official Lang	170	175	595	520	70
1996 Population - % Home Lanuage(single response) - Non-Official Lang	0.3%	0.3%	0.7%	0.7%	0.2%
1996 Population 15+ labour Force	48,645	51,800	63,920	54,780	26,795
1996 Population 15+ In labour Force	27,305	30,200	38,580	34,110	15,190
1996 Population %15+ In labour Force	56.1%	58.3%	60.4%	62.3%	56.7%
1996 Unemployed 15+	3,650	4,890	4,600	4,140	2,475
1996 % Unemployed 15+	13.4%	16.2%	11.9%	12.1%	16.3%
1996 Population 15 - 24 School Age	7,185	8,325	10,450	9,330	4,210
1996 Population 15 - 24 School Age - Not in School	2,995	3,890	4,070	3,690	1,715
1996 Population % 15 - 24 School Age - Not in School	41.7%	46.7%	38.9%	39.5%	40.7%
1996 Population 15+ School Age	48,660	51,825	63,920	54,780	26,795
1996 Population 15+ School Age - Less Than a Grade 9 Education	7,845	10,325	7,140	5,610	3,400
1996 % Population 15+ School Age - Less Than a Grade 9 Education	16.1%	19.9%	11.2%	10.2%	12.7%
1996 Population 15+ School Age - BA or higher	3,915	3,080	6,925	4,880	1,710
1996 % Population 15+ School Age - BA or higher	8.0%	5.9%	10.8%	8.9%	6.4%
1996 Population 15+ Income	48,655	51,705	63,830	54,775	26,800
1996 Population 15+ With Income	43,905	47,810	58,900	50,190	25,040
1996 Population %15+ With Income	90.2%	92.5%	92.3%	91.6%	93.4%
1996 Population 15+ Income Average Income	48,655	51,705	63,830	54,775	26,800
1996 Average Income	$ 22,021	$ 16,375	$ 17,257	$ 17,821	$ 17,648

Statistics Canada – Census 1996 by DHA

DHA	6	7	8	9	Total
1991 Population	49,649	50,109	142,527	349,351	899,877
1996 Population	48,716	49,110	139,632	361,729	909,180
% Change 1991 to 1996	-1.9%	-2.0%	-2.0%	3.5%	1.0%
Growth rate 1991 ot 1996	0.98	0.98	0.98	1.04	1.01
1998 Population (estimate)	49,547	49,392	139,778	378,586	934,587
% Change 1996 to 1998 (estimate)	1.7%	0.6%	0.1%	4.7%	2.8%
Growth rate 1996 ot 1998 (estimate)	1.02	1.01	1.00	1.05	1.03
1996 Population 65+	7,510	6,900	20,215	38,025	119,115
1996 Population % 65+	15.4%	14.1%	14.5%	10.5%	13.1%
1996 Population 75+	3,685	3,295	9,205	16,480	54,360
1996 Population % 75+	7.6%	6.7%	6.6%	4.6%	6.0%
1996 Population 15+	39,260	38,910	111,525	289,805	729,055
1996 Population % 15+	80.6%	79.2%	79.9%	80.1%	80.2%
1996 Population <15	9,456	10,200	28,107	71,824	180,134
1996 Population % <15	19.4%	20.8%	20.1%	19.9%	19.8%
1996 Population	48,035	48,760	138,030	358,595	893,835
1996 Aboriginal Population	400	790	4,680	2,410	12,290
1996 % Aboriginal Population	0.8%	1.6%	3.4%	0.7%	1.4%
1996 Population 65+	6,930	6,315	18,890	35,400	111,205
1996 Population 65+ living Alone	2,260	1,810	5,495	10,465	32,730
1996 % Population 65+ living Alone	32.6%	28.7%	29.1%	29.6%	
1996 Population - Mother Tongue	48,035	48,765	138,035	358,600	893,860
1996 Population - Mother Tongue(single response)	47,945	48,475	137,540	356,525	895,645
1996 Population - Mother Tongue(single response) - Non-Official Lang	720	885	4,640	13,860	24,450
1996 Population - % Mother Tongue(single response) - Non-Official Lang	1.5%	1.8%	3.4%	3.9%	2.7%
1996 Population - Home Lanuage	48,030	48,760	138,030	358,605	893,870
1996 Population - Home Lanuage(single response)	47,945	48,420	137,585	356,345	895,795
1996 Population - Home Lanuage(single response) - Non-Official Lang	215	305	2,935	6,730	11,715
1996 Population - % Home Lanuage(single response) - Non-Official Lang	0.4%	0.6%	2.1%	1.9%	1.3%
1996 Population 15+ labour Force	38,570	38,570	109,895	286,875	713,850
1996 Population 15+ In labour Force	22,305	22,095	57,380	191,765	438,930
1996 Population % 15+ In labour Force	57.8%	57.3%	52.2%	66.8%	61.5%
1996 Unemployed 15+	3,370	4,190	13,785	17,020	58,120
1996 % Unemployed 15+	15.1%	19.0%	24.0%	8.9%	13.2%
1996 Population 15 - 24 School Age	7,015	7,540	20,155	49,280	123,490
1996 Population 15 - 24 School Age - Not in School	2,555	2,300	6,735	17,695	45,645
1996 Population % 15 - 24 School Age - Not in School	36.4%	30.5%	33.4%	35.9%	37.0%
1996 Population 15+ School Age	38,575	38,565	109,895	286,875	713,880
1996 Population 15+ School Age - Less Than a Grade 9 Education	4,415	5,500	15,195	20,345	79,275
1996 % Population 15+ School Age - Less Than a Grade 9 Education	11.4%	14.3%	13.8%	7.1%	11.1%
1996 Population 15+ School Age - BA or higher	2,830	3,855	9,010	51,845	88,050
1996 % Population 15+ School Age - BA or higher	7.3%	10.0%	8.2%	18.1%	12.3%
1996 Population 15+ Income	38,565	38,570	109,885	286,810	713,505
1996 Population 15+ With Income	35,005	35,015	99,530	266,150	663,565
1996 Population % 15+ With Income	90.8%	90.8%	90.6%	92.8%	93.0%
1996 Population 15+ Income Average Income	38,565	38,570	109,885	286,810	713,505
1996 Average Income	$ 18,664	$ 18,393	$ 15,586	$ 20,267	$ 18,227

Statistics Canada – Census 1996 – by Age

	DHA	1	2	3	4	5	6	7	8	9	Total
	1991 Population	60,510	66,484	79,947	67,016	34,284	49,649	50,109	142,527	349,351	899,877
	1996 Population	59,904	64,812	81,507	69,975	33,804	48,716	49,110	139,632	361,729	909,189
	1998 Population	60,883	65,526	84,177	72,389	34,309	49,547	49,392	139,778	378,586	934,587
	Growth rate 1996 to 1998	1.02	1.01	1.03	1.03	1.01	1.02	1.01	1.00	1.05	1.03
Total – Both Genders – 1998	Males	29,977	32,029	41,243	35,602	16,675	23,972	24,495	67,370	183,338	454,703
	Females	30,927	33,510	42,932	36,776	17,640	25,569	24,902	72,411	195,243	479,910
	0-4	3,186	3,882	5,277	4,821	1,857	2,817	2,831	8,239	24,569	57,480
	5-9	3,750	4,231	6,026	5,214	2,121	3,183	3,570	9,555	26,123	63,775
	10-14	3,882	4,357	5,897	5,188	2,319	3,621	3,872	10,361	24,464	63,962
	15-19	3,918	4,423	5,634	5,043	2,233	3,875	4,129	10,861	23,554	63,670
	20-24	3,359	4,019	5,210	4,635	2,111	3,280	3,430	9,380	28,044	63,467
	25-29	3,542	4,312	5,277	4,666	1,994	2,960	2,731	7,928	30,440	63,850
	30-34	4,619	5,181	7,307	6,052	2,451	3,468	3,379	9,585	36,259	78,302
	35-39	5,046	5,202	7,379	6,259	2,542	3,900	3,661	11,032	35,134	80,155
	40-44	4,817	4,843	6,228	5,845	2,568	3,946	3,726	10,836	30,948	73,757
	45-49	4,685	4,807	5,835	5,297	2,416	3,783	3,797	10,391	28,363	69,374
	50-54	3,796	3,801	4,663	4,091	1,964	2,878	2,917	8,008	21,188	53,307
	55-59	3,201	3,094	4,028	3,336	1,862	2,202	2,343	7,027	15,846	42,940
	60-64	2,973	2,836	3,754	2,974	1,746	2,039	2,142	6,317	13,857	38,638
	65-69	2,841	2,765	3,325	2,695	1,649	2,009	1,946	5,751	11,994	34,975
	70-74	2,515	2,699	2,938	2,322	1,588	1,882	1,680	5,271	10,545	31,440
	75-79	2,155	2,335	2,401	1,883	1,299	1,668	1,423	4,355	8,022	25,541
	80-84	1,464	1,602	1,689	1,221	903	1,175	1,086	2,883	5,170	17,193
	85+	1,098	1,148	1,353	910	705	905	805	1,977	4,066	12,967

GLOSSARY

ACTUAL — The number of recorded visits, separations, clients, etc. that occurred within a specified timeframe. See Expected.

ACUTE CARE — The care required by a person who is seriously or acutely ill and who requires professional nursing care and observation, as well as daily medication. This level of care can also include individuals who are in the immediate recovery or convalescent phase following an illness or accident. The patient is typically in hospital for 2 to 5 days.

ALTERNATE LEVEL OF CARE (ALC) DAYS — A patient, ready for discharge from an acute care bed, but for whom the required level of service is not immediately available. Reporting ALC cases is a clinical decision made by the attending physician and indicated on the patient's chart. ALC days are a measure of total non-acute days of stay for patients awaiting discharge from acute care hospitals.

BED YEAR — Bed years represent a more traditional view of hospital size and capacity and are a measure of the number of inpatient beds a hospital operates over the course of a year. Bed years are not the total number of beds available to the facility, but the number of beds for which there was 100% occupancy for the year. Bed years are calculated using the number of patient days at 100% occupancy. This measure accommodates fluctuations in occupancy by focusing on patient days regardless of the total number of beds.

BENCHMARK — Criteria or points of reference for an indicator that identify a target or threshold value along with its acceptable ranges. An example benchmark for the indicator example may be 1 primary care physician per 1258 resident population.

CANADIAN INSTITUTE FOR HEALTH INFORMATION (CIHI) — A not-for-profit federally chartered company to which hospitals in Nova Scotia are required to submit predefined information on each inpatient and selected outpatients at the time of their discharge. Other institutions in Nova Scotia, as well as across Canada, submit patient data to CIHI, which has resulted in a Canada-wide comparative database of patient activity and treatment in hospitals.

CASE MIX GROUPS (CMGs) — Groupings of clinically cohesive patients, based on their diagnoses, length of stay, resource consumption and treatment methodology. There are minor revisions to the CMG grouping algorithms in each new fiscal year to recognize changes in clinical practice and new diseases.

CENSUS SUBDIVISION (CSDs) — Geographic area used by Statistics Canada, referring to incorporated areas such as Halifax or Sydney. District Health Authorities were developed using CSD aggregations.

CONSERVABLE DAYS — The difference between efficiency days and a hospital's performance at a clinical benchmark level. Conservable days represent potential clinical savings associated with changes in clinical and operational practices. Conservable days identified from each clinical benchmark are added to make the total conservable days for a hospital.

COMPLEX CONTINUING CARE — Complex continuing care deals with a patient population, which is medically unstable and requiring skilled, technologically-based continuing or intermittent intervention or life support. Such demands require staff highly trained with clinical expertise and knowledge in the care and treatment of chronic illnesses.

CONTINUUM OF CARE — A service delivery framework that classifies health and health care services and programs within an integrated health system. The Continuum of Care includes the following components:

- Promotion & Prevention - Programs and services that primarily function to promote health and/or prevent disease, e.g., the Wellness Centre, breastfeeding clinics, etc.

- Assessment - Programs and services that function to primarily provide assessments, e.g., dental screening, hearing exams, etc.
- Intervention - Programs and services that primarily function to address acute and/or short-term episodic health care needs, e.g., acute inpatient care, day care surgery, etc.
- Rehabilitation - Programs and services that primarily operate to maximize an individual's level of physical functioning, e.g., cardiac rehabilitation, stroke rehabilitation, etc.
- Chronic/Supportive - Programs and services that primarily function to support on-going and/or long-term health and social needs, e.g., extended care, meals on wheels, etc.
- Palliative - Programs and services that primarily function to support the needs resulting from life-threatening illness.

DAY CARE SURGERY — This is a surgical service provided to patients who:

- Do not require inpatient services
- Are admitted and discharged on the same calendar day
- Are usually discharged between one and six hours following the procedure

DISTRICT HEALTH AUTHORITY (DHA) — One of nine defined geographic areas, based on Census Subdivisions, into which the Province is split for the management of healthcare services.

EFFICIENCY DAYS — The acute days remaining after the application of a benchmark level of clinical performance and the removal of ALC and Trim Days

ELECTIVE ADMISSION — Hospital separations for which the CIHI entry code was recorded as "D" (elective).

EMERGENCY ADMISSION — Hospital separations for which the CIHI entry code was recorded as "E" (emergency).

EXPECTED — Expected visits, separations, clients, etc. represent the number that would exist at benchmark and normative levels. See Actual.

FULL TIME EQUIVALENTS - F.T.E. (PHYSICIANS) — Full Time Equivalent is used to account for the equivalent number of physicians who practice full-time at a particular hospital site. This is important in cases where part-time, itinerant or locum physicians are part of a medical staff roster and the number of individuals do not correspond to the equivalent number of physicians at that site.

FULL TIME EQUIVALENTS - F.T.E. (STAFF) — The purpose of FTEs is to convert all temporary, part-time and full-time staff into a full-time complement for comparative purposes. The equivalent number of staff members is based upon the total number of staff hours available in a year, from all staff types, in consideration of the total number of hours that a full-time staff member would have been available in a year (i.e., 1950).

HEALTH — A complete state of physical, mental and social well-being. The ability to realize hopes and satisfy needs and to change or cope with the environment

HEALTH STATUS — Indicators used to measure the state of health of individuals and the overall health of a community. Health status indicators can include life expectancy, the percentage of low birth weight babies, potential years of life lost, morbidity rates, mortality rates, etc.

HOSPICE PALLIATIVE CARE — Care or services provided to clients, family members, or health care providers resulting from the concerns that accompany life-threatening illness. Hospice Palliative Care aims to relieve suffering and improve quality of life for those persons who are living with or dying from advanced illness or who are bereaved, and offers social, emotional and spiritual support to persons and family members by members of an interdisciplinary team. Services include diagnosis, acute symptom management, supportive care, and bereavement.

HOSPITAL EMERGENCY UNIT — A unit within a hospital, which is specifically designated, designed, staffed and equipped to treat ill or injured patients requiring immediate, emergent or urgent assessment. Hospital emergency departments are classified as follows:

Level 4 - Basic Emergency Units' On-call' physician services available.

Level 3 - General Emergency Units Hospital services and general practitioners available with medical specialists consultation available.

Level 2 - Major Emergency Units (Designated emergency care centres).

Level 1 - Comprehensive Emergency Units Tertiary care facilities.

Criteria and minimum standards for Levels 3 and 4 are described in the Emergency Services Policy Guidelines.

HOSPITAL PROGRAMS — A summary classification system used for data management purposes. Hospital programs categorize CMGs that represent a homogeneous grouping of patients and which are based upon the clinical practice.

INDICATOR — Specific and measurable attributes of a parameter. More than one indicator may be required to fully evaluate a parameter (e.g., geographic-based rate variations of service). An example indicator for the parameter example may include the number of primary care physicians per 1000 population.

LONG TERM CARE — The provision of a variety of in-home health care support services, residential care services and special support services to assist people whose ability to function independently is affected by health related problems. The services include:

- Home Nursing Care
- Long Term Care - case management services
- Home Rehabilitation Care - physiotherapy and occupation therapy
- Health Services for adults who are mentally and physically challenged
- Nursing Homes and Homes for the Aged

MARKET SHARE — A value representing the percentage of the total separations, cases or clients attributed to a health care facility or agency, for a designated geographic area. This value is typically dictated by historical referral patterns.

MORBIDITY — Age standardized rates of illness in a defined population. The rates can be used to evaluate differences in the types and rates of illnesses experienced between communities.

MORTALITY — Age standardized rates of death in a defined population. The rates can be used to evaluate differences in the type and rates of death experienced between communities.

NOMINAL BED COUNT (DOH BED ALLOCATION) — The number of actual beds open and in operation at a specified date and time.

PARAMETERS — Parameters are features, or service characteristics, that define the level and scope of services, or the function of, a facility, an organization, agency or service provider. Examples of parameters may include:

- The size of a population served
- The distance between sites
- Specific programs or services provided - i.e., the scope or type
- Access characteristics

An example parameter for primary care includes a community's access to primary care physicians.

PERCENTILE — A number that divides the range of a set of data so that a given percentage lies below that number. For example, the 25th percentile was used for benchmarking length of stay.

PERSONAL CARE (PC) — A person who is independently mobile with or without mechanical aids, requires minimal assistance with the activities of daily living and requires non-professional supervision and/or assistance.

POTENTIAL YEARS OF LIFE LOST (PYLL) — The number of years of life lost in a population due to pre-mature death and as measured against a defined endpoint, e.g., 70 years of age.

REFERRAL POPULATION — A community, or the proportion of its population, are considered part of an agency's referral patterns based upon the proportion of cases or clients attributed to it from historical data.

REHABILITATION (AND ACTIVATION) — The type of care required by persons of any age, as a special use of acute care requiring a planned co-ordinated, intensive program of rehabilitation, without which they are unlikely to return home, to school or work.

RESOURCE INTENSITY WEIGHT (RIW) — An RIW is a Case Mix Group specific relative measure of expected costs. RIWs are used to standardize measurements of inpatient case volumes by recognizing that not all patients require the same type or quantity of health care resources. For example, the resource requirements to treat a heart transplant patient are significantly more than those required to treat the removal of tonsils. Therefore, the RIW for the former patient is comparatively higher than the latter.

SEPARATIONS — There are two types of separations: actual and expected. Actual separations are those reported in the CIHI database. Expected separations represent the number that would exist at benchmark and normative levels.

WEIGHTED CASES — Weighted cases provide a standardized means to compare a hospital's services in terms of its resource requirements. It measures both the volume of inpatient cases occurring in a facility as well as the intensity of those cases. For example, simple procedures have small resource intensity weights associated with the, while cases with complex requirements will have heavier weighting.